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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/752,548

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

NOTIFICATION DATE

DELIVERY MODE

05/05/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/752,548	Applicant(s) KIM ET AL.	
	Examiner BURTON MULLINS	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-12 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-12 and 25-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

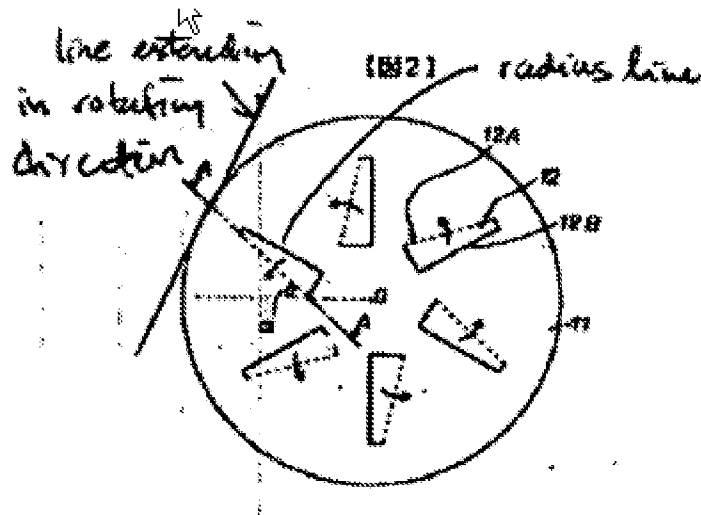
1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 5-7 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. (US 6,396,177) in view of Kurihara et al. (JP 10-210727) and Uemura (US 6,781,263). Shin teaches a motor comprising: a stator 100; a rotor (comprising magnets 540 & back yoke 513) rotatably disposed around the stator (Fig.4A); and a rotor cup (cylindrical frame) 510 having cooling-holes 516 formed at the bottom part thereof for allowing external air to flow into the inside of the rotor cup therethrough (Figs.4B-7B; c.5:10-15), and lower blades 517 formed at the bottom part thereof for generating a blowing force (c.5:13-15), the rotor being fixed to the rotor cup 510 at the inner circumference thereof (Fig.4A), wherein each of the lower blades 517 is protruded from one side of each of the cooling-holes 516 towards the stator (c.5:50-51; Fig.7a).

Shin does not teach: 1) each of the lower blades and the cooling-holes has an acute sloping angle to the line extended in the rotating direction of the rotor cup and perpendicular to the radial direction of the rotor cup, or 2) a plurality of upper blades located above the top of the rotor for supplying external air to an upper part of the rotor when the rotor is rotated.

Regarding (1), Kurihawa (see partial machine translation) teaches (Fig.2) a rotor 1 and rotor cup including cooling holes 11A with blades (pieces) 12 wherein each of the blades and the cooling-holes are trapezoidal and slanted such that each has an acute sloping angle to the line extended in the rotating direction of the rotor cup and perpendicular to the radial direction of the

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rotor cup, thereby improving air flow and cooling in either direction of rotation (see translation [0010] and marked Fig.2 below).



Regarding (2), Uemura teaches a bowl-shaped rotor (Figs.1-4) including a plurality of upper blades 16 located above the top of the rotor (i.e., at the open end) for supplying external air to an upper part of the rotor when the rotor is rotated and cooling the interior coil (c.3:57-c.4:4; c.2:13-35).

It would have been obvious to modify the lower blades and cooling holes of Shin such that each has an acute sloping angle to the line extended in the rotating direction of the rotor cup and perpendicular to the radial direction of the rotor cup per Kurihawa since this would have improved air flow and cooling in either direction of rotation; and it would further have been obvious to modify Shin and Kurihara and provide a plurality of upper blades located above the top of the rotor per Uemura to generate air currents at the upper part of the rotor and cool the coil.

Regarding claim 5, as seen in Uemura Figs.2-3, the upper blades 16 extend upwardly from the top of the rotor and protrude upwardly above the rotor cup 11.

Regarding claims 6-7, in Uemura the upper blades of the fins 16 in Fig.1 are at a prescribed angle to the radial direction, with each upper blade having an acute sloping angle to the line extending in the rotating direction of the rotor and perpendicular to the radial direction of the rotor.

Regarding claim 25, the cooling holes 11A in Kurihara are “trapezoidal” and thus generic to the species comprising rectangles. Further, changing the shape would have been obvious since changes in shape have been held to involve ordinary skill. In Dailey, 149 USPQ 47 (CCPA 1976).

Regarding claim 26, the perimeter of each cooling hold in Shin and Kurihara is entirely within a flat bottom portion of the bottom part of the rotor cup.

Regarding claims 27-29, the shape and size of the blades and cooling holes in Shin and Kurihara is the same, since each blade is a portion of the bottom part that has been cut and bent.

3. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. (US 6,396,177) and Kurihara et al. (JP 10-210727) and Uemura, further in view of Yokota (US 7,078,841). Shin, Kurihara and Uemura substantially teach applicant's invention but do not teach that “the rotor cup is provided at the circumference thereof with vents for allowing the air introduced into the inside of the rotor cup to be discharged therethrough” (claims 8&9).

Yokota teaches a motor comprising a rotor (i.e., permanent magnet) 12 rotatably disposed around a stator 17 (Figs.1&3), and rotor cup 11 provided at the circumference thereof with vents (portion of through-hole 19 in peripheral wall 11a; c.4:5-9&22-33; Figs.2&3) for allowing the air introduced into the inside of the rotor cup to be discharged therethrough (c.4:53-65).

It would have been obvious to modify Shin, Kurihara and Uemura and provide the rotor cup with vents at the circumference thereof per Yokota since the vents would have been desirable to generate forced air currents flowing from the interior to the exterior, thus cooling the motor.

Regarding claim 10, in Yokota the vents 19 are disposed below the rotor (magnets) 12 (Fig.2).

Regarding claim 11, in Yokota the vents 19 are arranged in large numbers at the circumference of the rotor cup in the circumferential direction (portion of through-hole 19 in peripheral wall 11a; c.4:5-9; Figs.2&3).

Regarding claim 12, the ratio between the area of a cooling-hole and the area of a circumferential vent is not specifically taught by Shin, Kurihara, Uemura or Yokota to be in the range of 2:1 to 4:1. However, it is clear from Figs.2&3 of Yokota that the circumferential area (i.e., of portion of through hole 19 in peripheral wall 11a, c.4:5-9, Figs.2&3) is generally less than the axial-facing area (of the cooling hole 19). A range of ratios between 2:1 and 4:1 would have been an obvious matter of engineering design since it has been held that where the general conditions of a claim are met, discovering optimum or workable ranges involves only routine skill. In re Aller, 105 USPQ 233.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 5-12 & 25-29 have been considered but are moot in view of the new grounds of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BURTON MULLINS whose telephone number is (571)272-2029. The examiner can normally be reached on 9-5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BURTON MULLINS/
Primary Examiner, Art Unit 2834

bsm
25 April 2008